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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/900,524 | 07/06/2001 | Juhani A. Martti | 540-012.3 | 4004 |

4955 7590 08/18/2003

WARE FRESSOLA VAN DER SLUYS &
ADOLPHSON, LLP
BRADFORD GREEN BUILDING 5
755 MAIN STREET, P O BOX 224
MONROE, CT 06468

EXAMINER

YUN, JURIE

ART UNIT PAPER NUMBER

2882

DATE MAILED: 08/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/900,524

Applicant(s)

MARTTI, JUHANI A.

Examiner

Jurie Yun

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 January 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 4-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949).

In the present instance, claim 4 recites the broad recitation "having a central angle of about 60-80 degrees", and the claim also recites "preferably about 70 degrees" which is the narrower statement of the range/limitation.

In the present instance, claim 5 recites the broad recitation "having a central angle of about 60-80 degrees", and the claim also recites "preferably 70 degrees" which is the narrower statement of the range/limitation.

In the present instance, claim 6 recites the broad recitation "wherein the maximal retardation of the movement of the X-ray beam in the front area is 40-60 %", and the claim also recites "preferably about 50 %" which is the narrower statement of the range/limitation.

Claim Objections

4. Claims 8 and 9 are objected to because of the following informalities: In claim 8, "...is set as at least..." appears to be a typo. In claim 9, "elongated aperture (2)" should be "elongated aperture (29)". Appropriate correction is required.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Finkenzeller et al. (USPN 4,521,899) in view of Virta et al. (USPN 4,783,793).

7. With respect to claim 1, Finkenzeller et al. disclose a panoramic dental X-raying method, comprising emitting an X-ray beam (12) from a radiation source (3) provided in a rotating arm (1), guiding said beam through the dental arch to a recorder (2) disposed opposite the radiation source in the arm in order to form an image, rotating the arm so

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as to form an image of substantially the entire width of the dental arch, limiting the X-ray beam by a shutter in the front area of the dental arch as compared to the two sides of the arch, in order to increase in said front area the thickness of the layer of which a sharp image is formed (column 3, lines 25-31). Finkenzeller et al. do not disclose retarding the movement of the X-ray beam in said front area of the dental arch compared to the two sides of the arch. Finkenzeller et al. disclose an equivalent method to compensate the radiation exposure by increasing the radiation intensity when the slit width becomes smaller (column 3, lines 38-44). Nonetheless, Virta et al. disclose specifically retarding the movement of the X-ray beam to compensate the radiation exposure when X-raying different jaw sizes (column 3, lines 24-33). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Finkenzeller et al. panoramic method to include retarding the movement of the X-ray beam in said front area of the dental arch compared to the two sides of the arch, because this is a functionally equivalent way to increase the radiation intensity in the front area of the dental arch in order to compensate the radiation exposure.

8. With respect to claims 2 and 3, Finkenzeller et al. disclose the X-ray beam is first narrowed and then widened by sliding movements of the shutter, accompanied by increasing and decreasing the radiation intensity of the X-ray beam so as to subject the arch to a substantially constant exposure to X-rays through the entire length of the arch (column 3, lines 38-44). Finkenzeller et al. do not disclose the X-ray beam is first narrowed and then widened by sliding movements of the shutter accompanied by simultaneous gradual retardation and acceleration of the movement of the X-ray beam

so as to subject the arch to a substantially constant exposure to X-rays through the entire length of the arch. Virta et al. disclose gradual retardation and acceleration of the movement of the X-ray beam so as to subject the arch to a substantially constant exposure to X-rays through the entire length of the arch (column 3, lines 24-33). It would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the Finkenzeller et al. panoramic method of increasing and decreasing the radiation intensity of the X-ray beam with using gradual retardation and acceleration of the movement of the X-ray beam, as taught by Virta et al., to compensate for radiation intensity since these are functionally equivalent ways to compensate the radiation exposure.

9. With respect to claim 4, Finkenzeller et al. do not disclose the X-ray beam is narrowed in a sector of the dental arch having a central angle of about 60-80 degrees, preferably about 70 degrees. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to select this since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

10. With respect to claim 5, Virta et al. do not disclose the movement of the X-ray beam is retarded in a sector of the dental arch having a central angle of about 60-80 degrees, preferably 70 degrees. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to select this since it has been held that where the general conditions of a claim are disclosed in the prior art,

discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

11. With respect to claim 6, Virta et al. do not disclose the maximal retardation of the movement of the X-ray beam in the front area is 40-60%, preferably about 50% as compared to the sides of the arch. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to select this since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

12. With respect to claims 7 and 8, Finkenzeller et al. disclose the X-ray beam is narrowed in the front area of the dental arch (column 3, lines 25-31). Finkenzeller et al. do not disclose that this increases the thickness of the sharp layer by 50% or more as a result of the decreased width. However, this would be obvious because Finkenzeller et al. disclose the same method of narrowing the X-ray beam in the front area of the dental arch and are concerned with obtaining thicker layer sharp images in this area.

With respect to claim 8, Finkenzeller et al. do not disclose the thickness of the sharp layer is about 1.5 cm in the front area of the dental arch. However, this would be obvious because Finkenzeller et al. disclose the same method of narrowing the X-ray beam in the front area of the dental arch and are concerned with obtaining thicker layer sharp images in this area.

13. With respect to claim 9, Finkenzeller et al. disclose the shutter comprises an elongated aperture which allows radiation to pass through and whose width is

decreased and increased under mechanical control of the rotational movement of the arm (column 3, lines 2-24).

Claim Rejections - 35 USC § 102

14. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

15. Claims 10-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Finkenzeller et al. (USPN 4,521,899).

16. With respect to claim 10, Finkenzeller et al. disclose an apparatus for panoramic dental X-raying, comprising an arm (1) rotating about an axis (7), a radiation source (3) provided at one end of the arm for generating an X-ray beam (12), a shutter (4) for shaping the X-ray beam, and a recorder (2) provided at the opposite end of the arm for receiving the X-ray beam after it has passed through the dental arch in order to form an image of the dental arch, characterized in that the shutter comprises an aperture allowing the X-ray beam to pass through and adapted to narrow during the rotational movement of the arm and to subsequently resume its original width (column 3, lines 25-31).

17. With respect to claim 11, Finkenzeller et al. disclose the shutter is connected to the arm rotating mechanism such that the aperture decreases and increases in width under mechanical control of the movement of the arm (column 3, lines 2-24).

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18. With respect to claim 12, Finkenzeller et al. disclose the rotational axis of the arm is disposed to move relative to the dental arch during the X-raying (column 2, lines 49+).

Conclusion


19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Virta et al. (USPN 4,741,007) disclose a panoramic X-ray apparatus.

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jurie Yun whose telephone number is 703 308-3535. The examiner can normally be reached on Monday-Friday 8:30-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on 703 308-4858. The fax phone numbers for the organization where this application or proceeding is assigned are 703 308-7722 for regular communications and 703 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308-0956.

Jurie Yun
August 7, 2003


EDWARD J. GLICK
Supervisor EXAMINER
TECHNOLOGY CENTER 2800